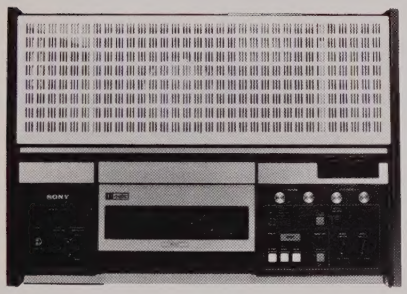
SONY®

VIDEOCASSETTE RECORDER U-matic

VO-2610



OPERATING INSTRUCTIONS

Before operating the set, please read this manual thoroughly and retain it for future reference.

OWNER'S RECORD

The model and serial numbers are located at the rear. Record these numbers in the spaces provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. VO-2610 Serial No._____

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The Sony U-matic VO-2610 is a highly-advanced videocassette tape recorder which provides color/monochrome video and two-channel audio recording and playback.
Thanks to its state-of-the-art electromechanical design, it will meet your severest requirements for an audio-visual aid in applications such as education, training, etc.

WARNING

- To prevent fire or shock hazard, do not expose the set to rain or moisture.
- To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

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FEATURES

Remote control
With the use of the model RM-420 remote control (optional), operation from a remote location is possible.

Pause mode and Still picture
The tape may be momentarily stopped in either the record or playback mode. In playback, when the Pause button is pressed, a still picture will be obtained. Still-picture adjustment and field-by-field tape advance are provided.

"Logic control" system
The function buttons are feather light to the touch.
The operating mode may be changed without pressing the STOP button between modes.

Automatic control of video recording level
The Automatic Gain Control maintains the video recording level at the correct value, assuring optimum video recording.

Manual control of audio recording levels, limiter recording system
Audio levels may be controlled manually. Level meters indicate the signal levels.
When the AUDIO LIMITER switch is set to ON, high level peaks are reduced, and tape saturation and distortion are prevented without audibly altering the dynamic range of the recording.

Timer operation
The supplied timer recording adaptor permits preset, automatic, clock-controlled recording and playback, with the use of an optional timer.

Audio dubbing
Audio in the form of commentary or music may be added at any time to video recordings made earlier.

Playback on a conventional TV receiver
The playback picture may be viewed on a conventional TV receiver by means of a channel selectable RF modulator (optional).

Full auto rewind
At the end of the tape, the transport stops and fully rewinds automatically.

Dual audio tracks
Two audio tracks permit recording and playback of stereo sound or bilingual program material.

Automatic tape motion
The setting of the PROGRAMMED OPERATION selector and MEMORY COUNTER permits repeat playback between the tape beginning and "000" counter reading position, or it may be used to locate a point where playback is to be started after the rewind mode.

PRECAUTIONS

- The model available in US and Canada : Operate only on 120 V ac, 60 Hz.

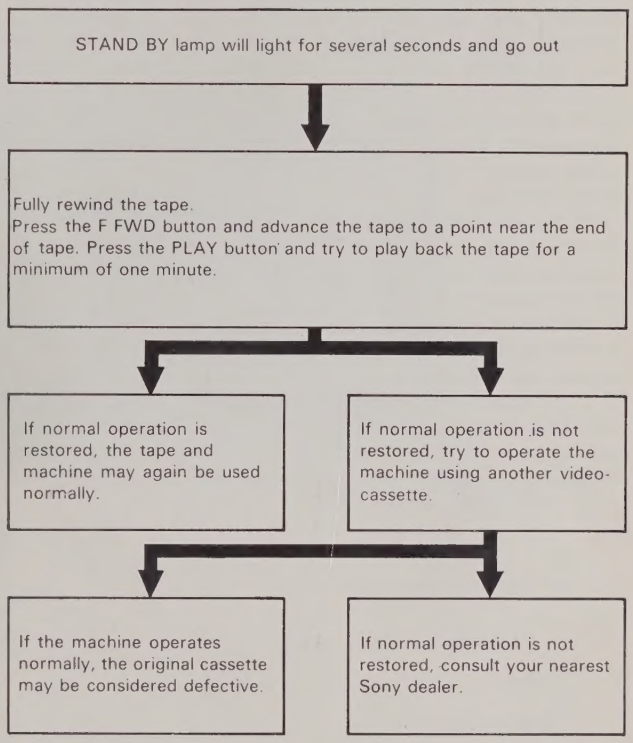
For other countries, the machine which operates on 120 V ac, 50 Hz, or 220 V ac, 50 Hz, is prepared. The operating voltage of the machine is indicated on the serial number plate at the rear. Before connecting the set to an ac outlet, check that the operating voltage is the same as the ac source voltage.

- Keep the machine and the videocassette tape away from strong magnetic fields, high temperatures and excessive dust and moisture.
- Avoid subjecting the machine to unnecessary shock or impact.
- Should any material, liquid or solid, fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it further.
- Allow adequate air circulation to prevent internal heat buildup.
- Unplug the machine from the wall outlet when it is not to be used for an extended period of time.
- To disconnect the cord, pull it out by the plug. Never pull it by the cord.
- Never operate the machine in a warm location just after bringing it from a cold location.
- The machine is designed for operation in a horizontal position.
- Save the carton and associated packing material. They will be useful should you have to transport or ship the machine.
- Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with mild detergent solution. Do not use any type of solvent such as alcohol or benzine which may damage the finish.
- If you have any questions about this machine, contact your dealer or your nearest Sony authorized VTR service station or Sony VTR factory service center.

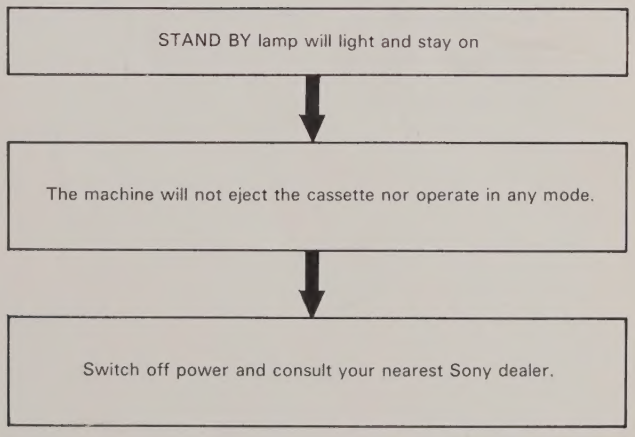
TAPE PROTECTION DEVICE

This machine features a safety device which protects videocassette tapes from being damaged. The safety device senses improper tape motion and stops it in either of the following two ways.

Case 1


STAND BY lamp will light for several seconds and go out
Fully rewind the tape.
Press the F FWD button and advance the tape to a point near the end of tape. Press the PLAY button and try to play back the tape for a minimum of one minute.
If normal operation is restored, the tape and machine may again be used normally.
If normal operation is not restored, try to operate the machine using another videocassette.
If the machine operates normally, the original cassette may be considered defective.
If normal operation is not restored, consult your nearest Sony dealer.

Case 2


STAND BY lamp will light and stay on
The machine will not eject the cassette nor operate in any mode.
Switch off power and consult your nearest Sony dealer.

AUTO OFF LAMP

This machine includes an "AUTO OFF" lamp on the front panel, which functions in the following two ways :

1. This lamp indicates the operation of a moisture sensor that temporarily disables the operation of the machine. If you directly transport the machine from a cold location to a warm location, the lamp may light when the POWER button is switched on, indicating that moisture has condensed on the head drum. The tape will tend to stick to the head drum. However, it requires a few minutes until the moisture has condensed on the head drum and the lamp lights. After transportation, be sure to leave the machine for about 10 minutes without connecting to the power source.

After 10 minutes, turn on the power button and check as follows.

(a) If the lamp does not light : Operate the machine normally.

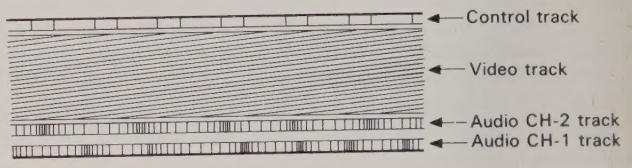
(b) If the lamp lights : Keep the machine in the power on condition and wait until the moisture evaporates and the lamp goes off (for about an hour).

If the lamp lights, the machine will not operate in the PLAY, F FWD or REW mode. In this case, do not try to insert or remove the videocassette.

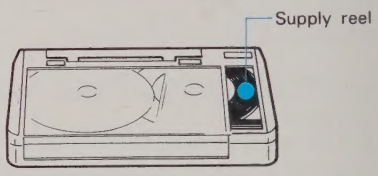
2. If the photo lamp, which stops the tape automatically at its end, fails to function, the AUTO OFF lamp stays on and the tape stops. Under this condition, each function is deactivated. Consult your nearest Sony authorized VTR service station or Sony VTR factory service center.

NOTE ON VIDEOCASSETTE TAPE

Since the full width of the tape is used for recording picture and sound, the tape cannot be used in the reverse direction.



Rewind the tape onto the supply reel and always store the videocassette in the cassette case whenever it is to be carried or mailed.



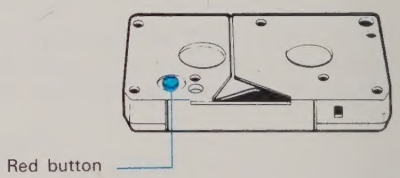
Videocassettes incorporate a convenient safety device to prevent accidental erasure.

If the small red button located on the bottom of the videocassette is removed, the safety device is activated, preventing recording.

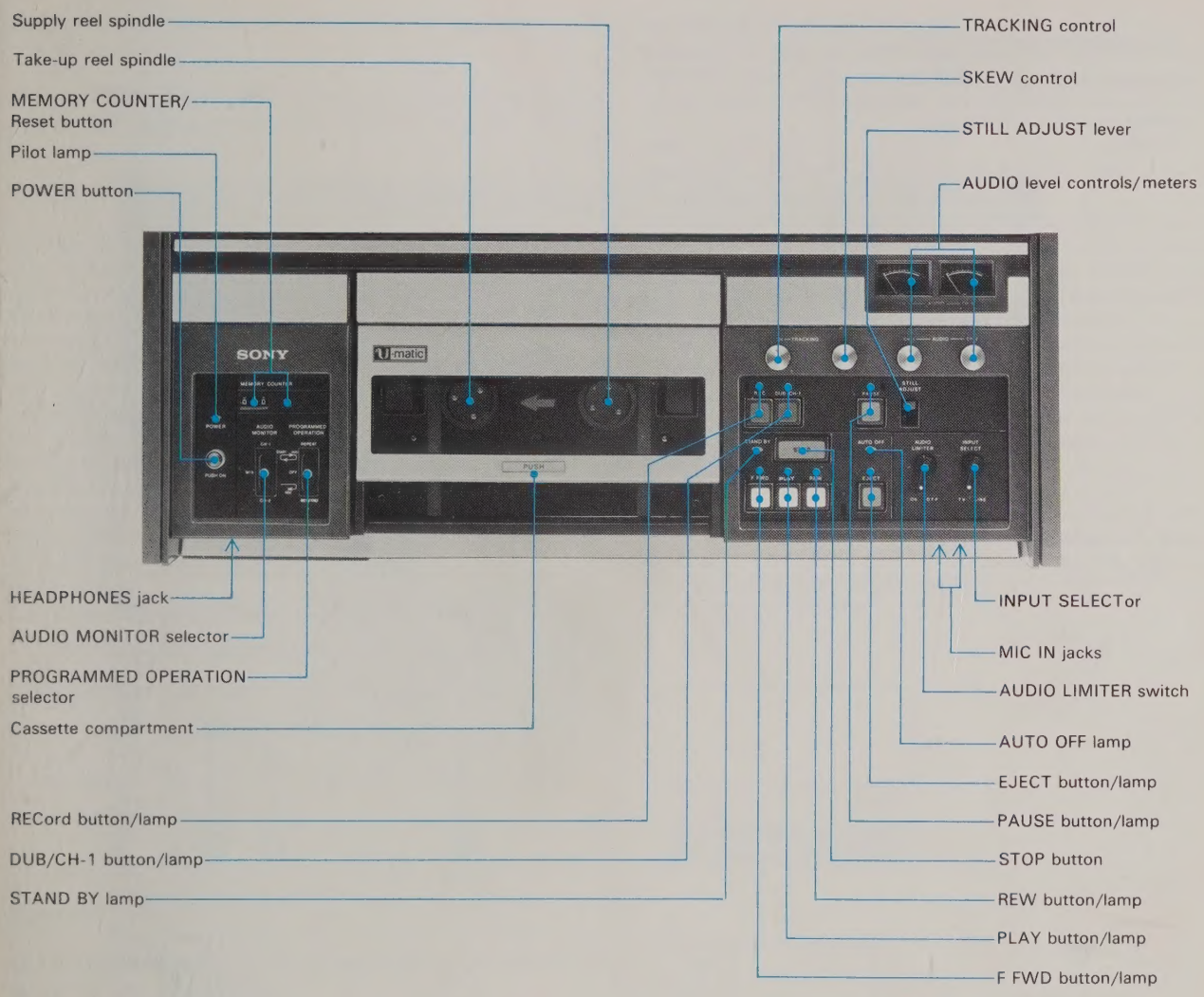
To reuse a tape for recording after the button has been removed, simply insert the red button into its original position.

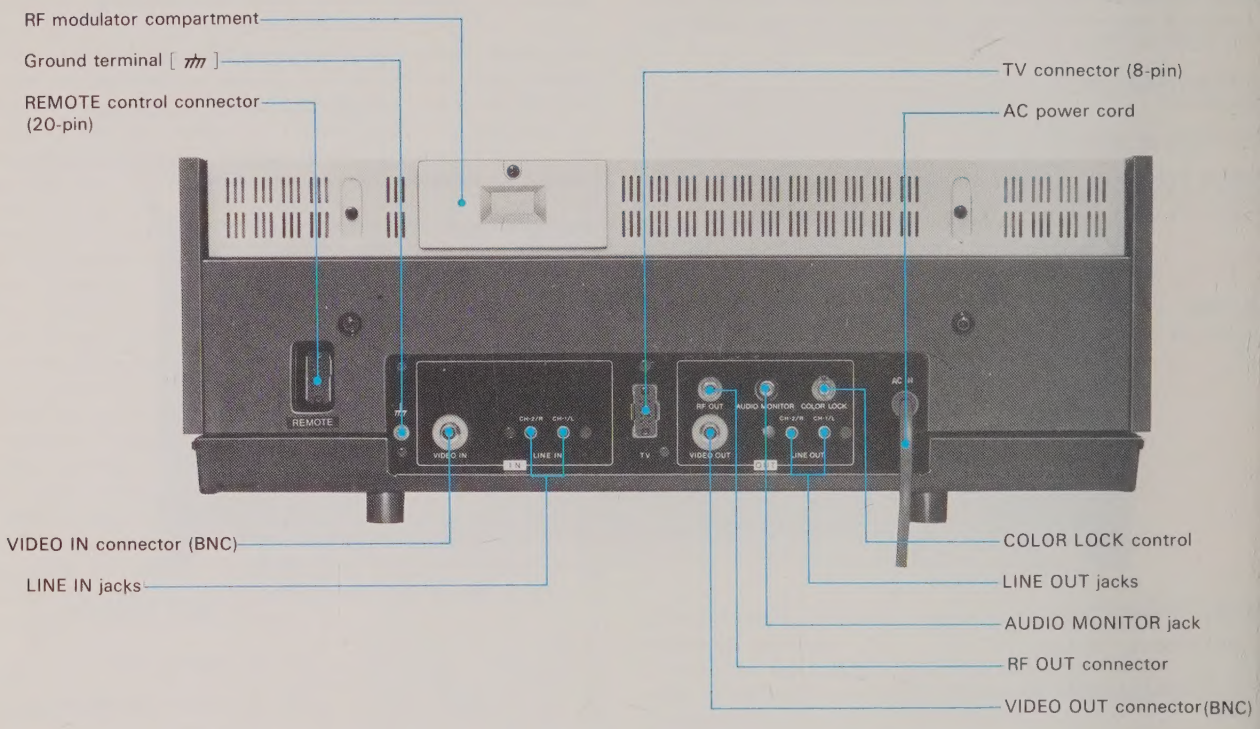
When recording, make sure that the red button is in place.

Previous recordings are automatically erased whenever the machine is set in the record mode.



LOCATION OF PARTS AND CONTROLS




RF modulator compartment
Ground terminal [⏚]
REMOTE control connector (20-pin)
TV connector (8-pin)
AC power cord
REMOTE
VIDEO IN
LINE IN
CH-2/R
CH-1/L
TV
RF OUT
AUDIO MONITOR
COLOR LOCK
VIDEO OUT
LINE OUT
VIDEO IN connector (BNC)
LINE IN jacks
COLOR LOCK control
LINE OUT jacks
AUDIO MONITOR jack
RF OUT connector
VIDEO OUT connector (BNC)

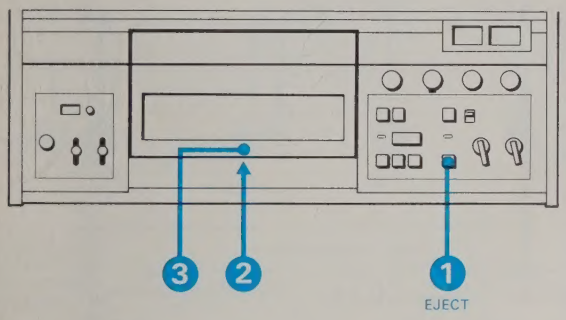
VIDEOCASSETTE INSERTION AND REMOVAL

Circled numbers in the illustrations refer to step numbers in the text.

Turn on the videocassette recorder by pressing the POWER button. The Pilot lamp will light indicating that the power is on.

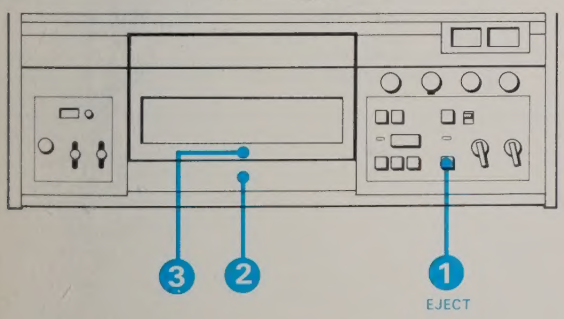
INSERTION

❶ Press the EJECT button, and the cassette compartment will pop up automatically.
❷ Insert a videocassette and slide it in as far as it will go. (Before inserting, take up slack in the tape by turning the reels manually.)
❸ Press the cassette compartment down into the play position.
● If you should insert a cassette in which the leader strip attached to the end of the tape has accidentally been pulled out, the recorder will automatically operate in the fast forward mode. In this case, press the EJECT button and remove the cassette. Rewind the end-leader strip fully by turning the supply reel in the direction shown by the arrow at the bottom of the cassette. Insert the cassette again after confirming that the end-leader strip has been wound onto the supply reel.



REMOVAL

❶ Press the EJECT button. The cassette compartment will rise.
❷ Pull out the videocassette.
❸ Press down the compartment.

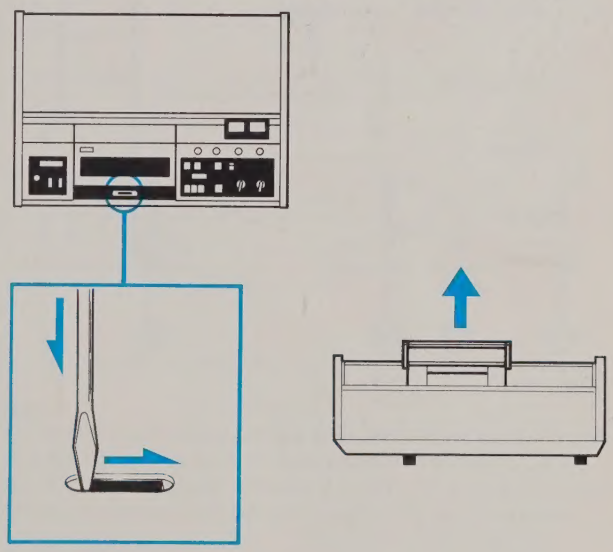


Note
● Be sure to remove the cassette before turning off the power.
● Avoid subjecting the cassette compartment to unnecessary shock or impact while it is rising.

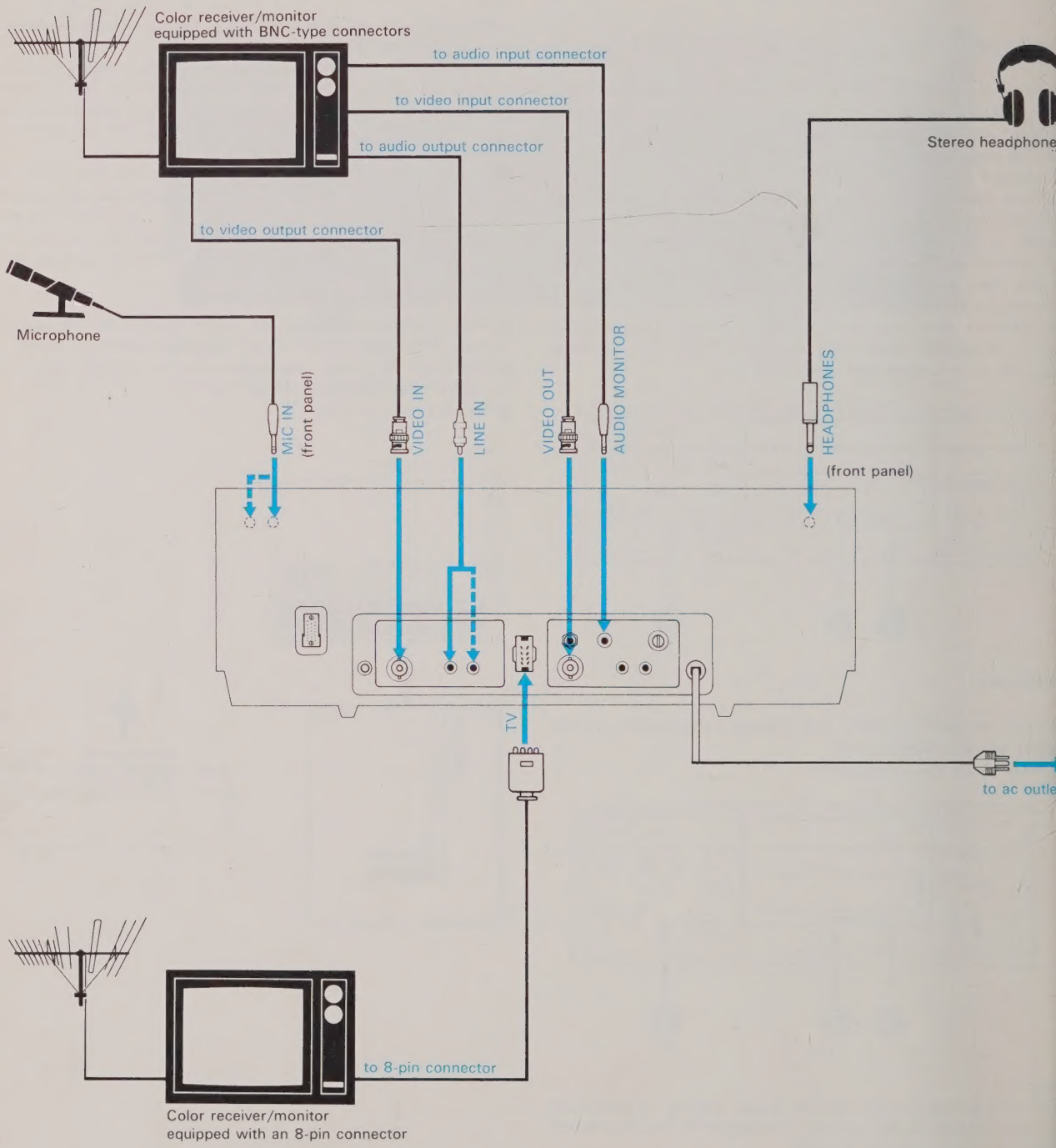
To remove a cassette manually
Normally the cassette is removed using the EJECT button. However, should you inadvertently insert a cassette where ac house current is not available, you may take it out manually.

Note
● Except for the aforementioned case, do not attempt to remove the cassette manually.
This recorder is designed to draw out the tape slightly from the cassette as soon as the cassette is installed into the cassette compartment, so long as the power is turned on. Manual removal in this condition may damage both the tape and the recorder. Always use the EJECT button to remove a cassette.
● If it is not certain whether or not the cassette has been inserted with the power turned on, do not attempt manual removal.
● If the cassette cannot be removed with the EJECT button when the power is turned on, do not operate further. Consult your nearest Sony authorized VTR service station or Sony VTR factory service center.

❶ Insert a small screwdriver or similar device into the slot located at the center of the cassette compartment.
❷ When the tip of the screwdriver touches bottom, slide it to the right. The compartment will pop up.
❸ Remove the cassette.



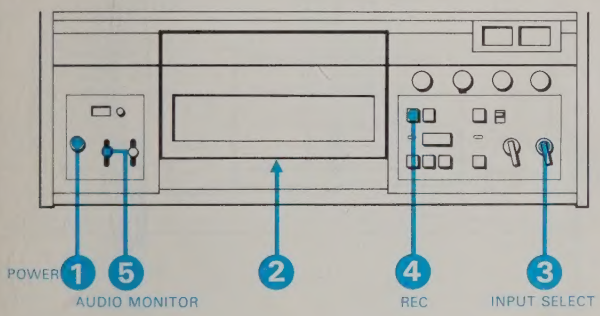
CONNECTIONS



OPERATION

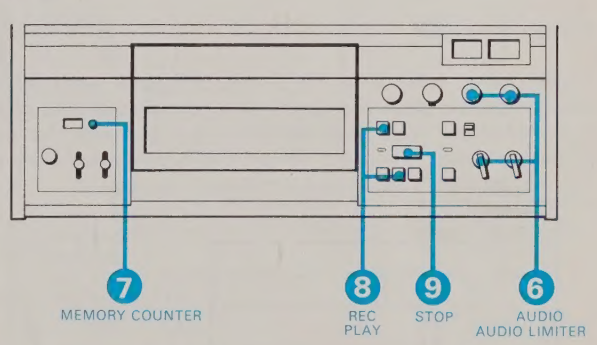
Circled numbers in the illustrations refer to step numbers in the text.

❶ Press the POWER button. The Pilot lamp will light.
❷ Make sure that the small red button located on the bottom of the cassette is in place, and insert the videocassette into the recorder.
❸ Set the INPUT SELECTor according to the input source applied. If the VIDEO IN connector is used, set it to LINE. If the TV connector is used, set it to TV.
❹ Press the REC button to monitor the picture to be recorded (E-to-E mode* signal). The REC lamp will light, and the picture will appear on the monitor screen. Select the desired program and adjust the video monitor for the best possible picture.
❺ Set the AUDIO MONITOR selector to monitor the audio input signal referring to the table shown below.



Positon of AUDIO MONITOR selector	Connectors used		
	AUDIO MONITOR or TV	HEADPHONES	LINE OUT
CH-1	Audio channel 1 (left)	Audio channel 1 in both headphones	Any
MIX	Both channels (monaural sound from stereo recording)	Audio channel 1 in the left ; audio channel 2 in the right	
CH-2	Audio channel 2 (right)	Audio channel 2 in both headphones	

❻ Audio signal adjustment :
Set the AUDIO LIMITER switch to OFF. Adjust the appropriate AUDIO level controls so that the meter pointers swing up to, but not into, the red scales at maximum deflection. If only one audio channel is used, set the other channel control to minimum.
If it is desired to minimize audio distortion on program peaks, return the AUDIO LIMITER switch to ON after the audio signal adjustment is completed. For manual recording, leave the switch in the OFF position.
Note 1 : When a video monitor equipped with an 8-pin connector is used to record an off-the-air program, TV sound will be recorded only on the audio channel 2 track (right channel).
Note 2 : When only one audio channel is used for recording TV sound, another audio signal may be applied to the other channel and recorded simultaneously.
Note 3 : If the MIC IN and LINE IN jacks of the same channel are used simultaneously, the MIC IN jack has priority and audio from the LINE IN jack will not be recorded.
❼ Set the MEMORY COUNTER to "000" by pressing the Reset button.
❽ While pressing the REC button, simultaneously press the PLAY button.
When recording begins, an automatic gain control system in the recorder will automatically maintain optimum video recording level.
❾ When the tape comes to its end, the machine will stop automatically. You may stop the tape at any point by pressing the STOP button.



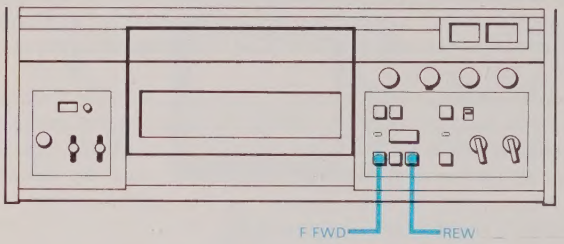
Note
The E-to-E mode signal can be displayed on the screen by pressing REC button even if the cassette compartment is raised. But if a videocassette without a small red button for safety device is inserted, the machine can not be in E-to-E mode.

Caution
Television programs, films, video tapes and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws.

* E-to-E mode (Electronics-to-Electronics mode)
When the REC button is pressed, the video input signal to be recorded is frequency-modulated and then demodulated in the recorder for display on the monitor screen. This condition is called the "E-to-E mode". In this mode, verify that the best possible picture is displayed on the monitor. The audio input signal will be simultaneously available at the audio output jack(s). Check the audio signal to be recorded with the machine in this mode.

FAST FORWARD AND REWIND

To advance the tape rapidly, press the F FWD button.
To rewind the tape, press the REW button.
You can change from any operating mode directly into the fast forward or rewind mode without pressing the STOP button.

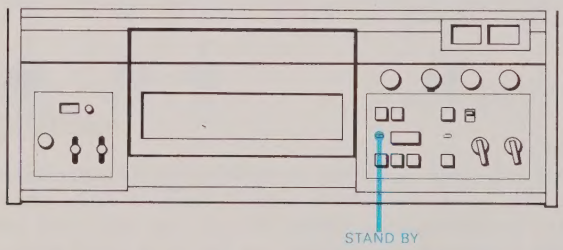


FULL AUTO REWIND

When the tape reaches its end, it will stop automatically and the REC, PLAY or F FWD lamp will go out. In a few seconds, the REW lamp will light and the tape will automatically rewind to the beginning and then stop. After full auto rewind, the machine will operate in the fast forward mode for a few seconds (automatic fast forward) to wind up the leader tape attached to the beginning of the tape. The tape is then ready for the playback or record mode of operation.

STAND BY LAMP

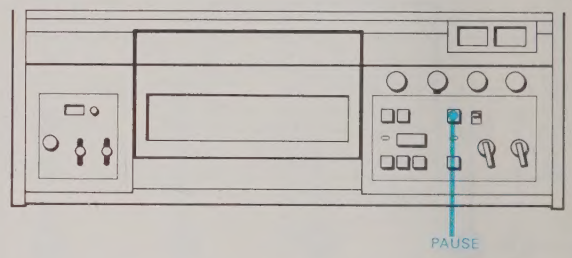
Under normal conditions, the STAND BY lamp will light for several seconds while the tape is being threaded or unthreaded in the machine. This lamp will also light whenever the tape protection device activates. Should this occur, refer to the paragraph entitled "Tape Protection Device" on page 3.



PAUSE MODE

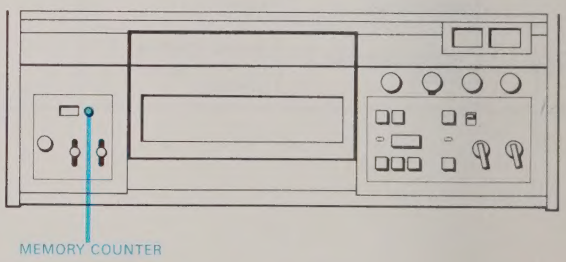
With the PAUSE button, tape motion may be stopped and re started instantaneously.
While recording, if the PAUSE button is pressed, the PAUS lamp lights and tape motion stops. The E-to-E mode signa remains on the monitor screen. To restart the tape, press th PAUSE button again. The PAUSE lamp will go out and th recording will continue.
If the PAUSE button is pressed during playback of a recorde tape, the recorder is placed in the pause mode. If the RE button is pressed in this condition, the E-to-E mode signal i displayed on the monitor screen. When the PAUSE button i pressed again to release the pause mode, the machine ente into the record mode.

Note : When playing back a tape recorded with the use of th PAUSE button, the picture may be unstable at the point wher the pause function was activated.



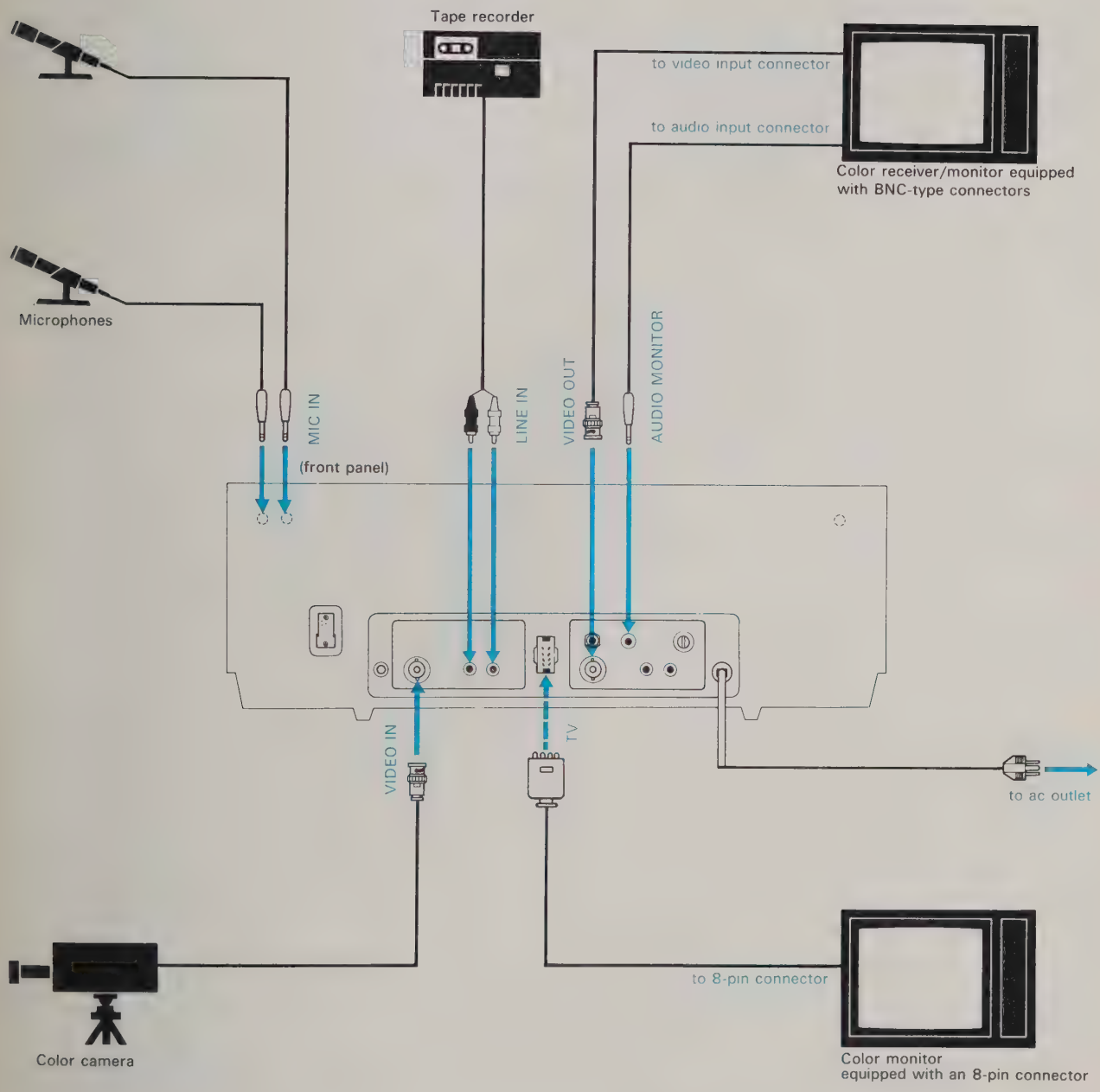
MEMORY COUNTER

Before recording, set the MEMORY COUNTER to "000" by push ing the Reset button. The counter number will advance wit tape motion. If you note the relationship between the recorde program and counter numbers, you can easily locate any desire portion of the program in playback.
Before recording, if you set the MEMORY COUNTER to "000 and the PROGRAMMED OPERATION selector to "REWIND ↩ " you can easily search the beginning of recorded portion.



CAMERA RECORDING

CONNECTIONS



Note

- Cameras must conform to American (EIA) TV standards.
- The MIC IN and LINE IN jacks of the same channel cannot be used simultaneously. The MIC IN jacks have priority over the LINE IN jacks. Any input to the LINE IN jacks is automatically disconnected whenever plugs are inserted into the MIC IN jacks.
- To reduce hum in the audio, connect the Ground terminal [⏚] to an earth ground.

AUDIO DUBBING

OPERATION

Circled numbers in the illustrations refer to step numbers in the text.

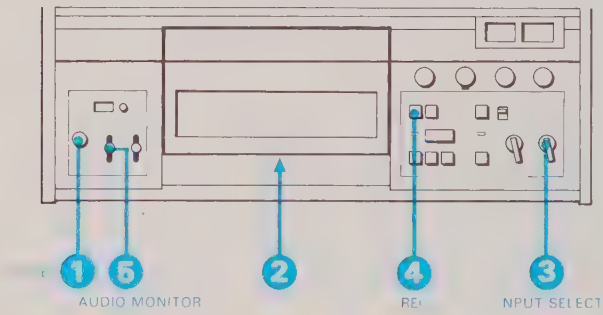
❶ Press the POWER button. The Pilot lamp will light.

❷ Make sure that the small red button located at the bottom of the cassette is in place, and insert the videocassette into the recorder.

❸ Set the INPUT SELECTor to LINE.

❹ Press the REC button to monitor the picture to be recorded (E-to-E mode signal). The REC lamp will light, and the picture will appear on the monitor screen. Make all necessary camera adjustments in readiness for recording.

❺ Set the AUDIO MONITOR selector to monitor the audio input signal, referring to the table shown on page 9.



❻ Audio signal adjustment :

Set the AUDIO LIMITER switch to OFF. Adjust the appropriate AUDIO level controls so that the meter pointers swing up to, but not into, the red scales at maximum deflection. If only one audio channel is used, set the other channel control to minimum. If it is desired to minimize audio distortion on program peaks, return the AUDIO LIMITER switch to ON after the audio signal adjustment is completed. For manual recording, leave the switch in the OFF position.

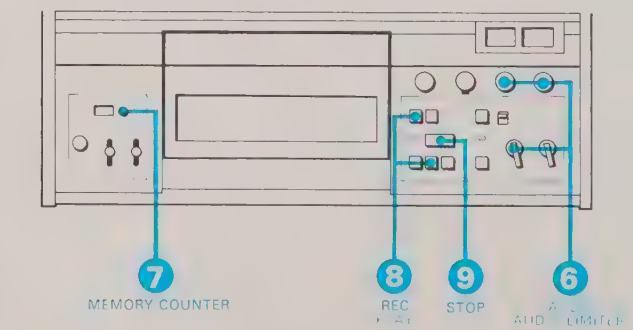
Note : If the MIC IN and LINE IN jacks of the same channel are used simultaneously, the MIC IN jack has priority and audio from the LINE IN jack will not be recorded.

❼ Set the MEMORY COUNTER to "000" by pressing the Reset button.

❽ While pressing the REC button, simultaneously press the PLAY button.

When recording begins, an automatic gain control system in the recorder will automatically maintain optimum video recording level.

❾ When the tape comes to its end, the machine will stop automatically. You may stop the tape at any point by pressing the STOP button.



Follow this procedure to record new audio onto a tape which has previously-recorded video material.

Make the necessary cable connections shown in the illustration on page 11.

Note : In the audio dub mode, recordings are made only on the audio channel 1 track (left channel). Connect the microphone to the MIC IN/L jack. If a high-level source of signal is to be used (tape or record player preamp output), connect to the LINE IN/L jack. Dubbing will not take place if the sound source is connected to the R input jacks.

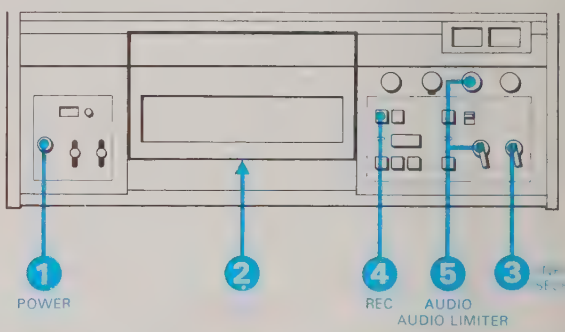
❶ Press the POWER button.

❷ Make sure that the small red button located at the bottom of the cassette is in place, and insert the videocassette into the recorder.

❸ Set the INPUT SELECTor to LINE.

❹ Press the REC button.

❺ Adjust the signal level of audio channel 1 (left channel). Refer to the paragraph "Camera Recording" for audio signal adjustment.

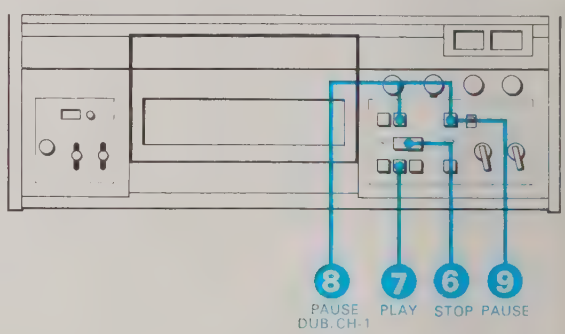


❻ Press the STOP button.

❼ Press the PLAY button and play back the prerecorded tape. Watch the playback picture on the monitor screen.

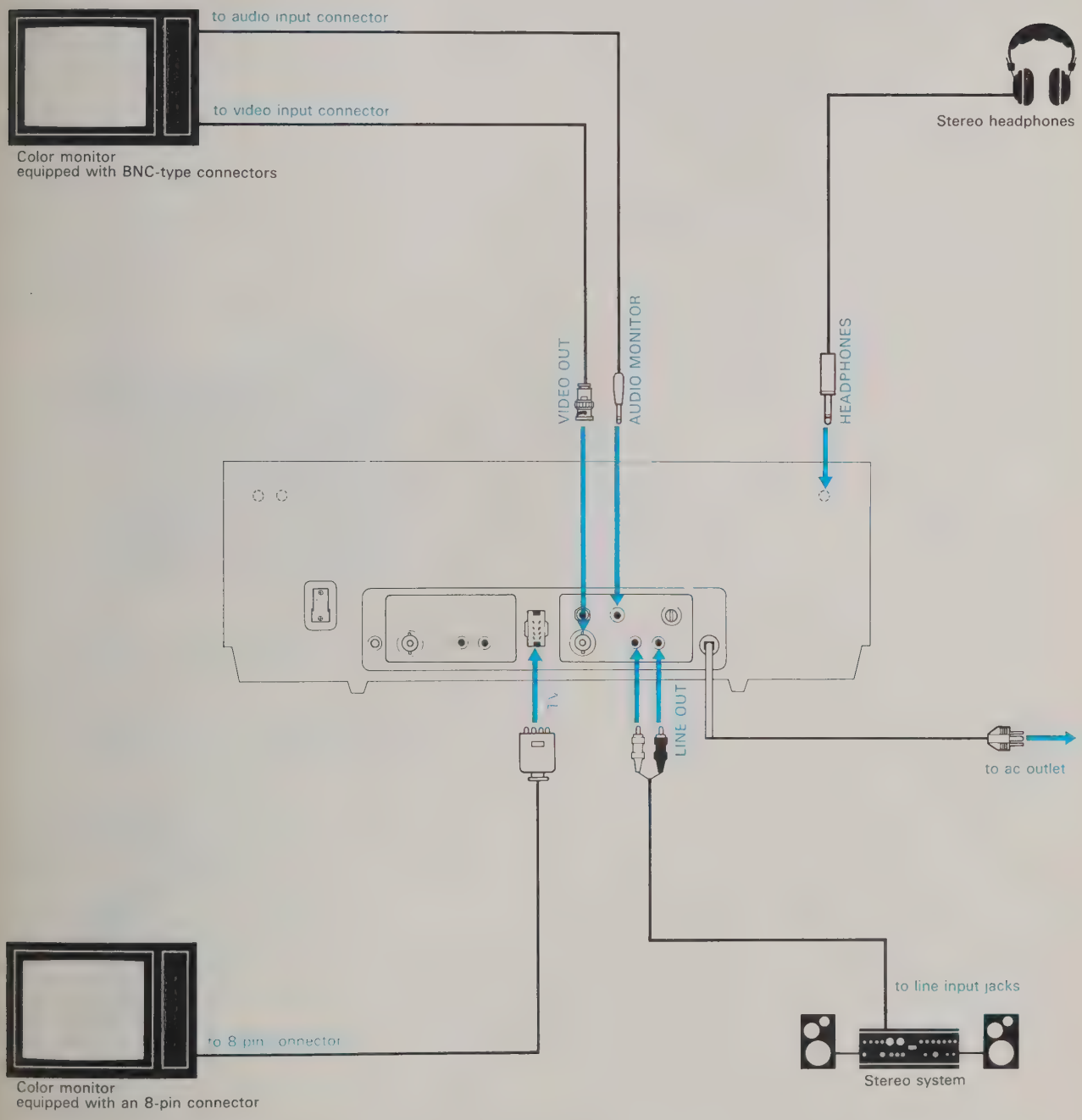
❽ At the point where audio insertion is to start, press the PAUSE button and then the DUB/CH-1 button.

❾ Press the PAUSE button again to release the pause mode. Audio dubbing will begin.



PLAYBACK USING A PROFESSIONAL VIDEO MONITOR

CONNECTIONS

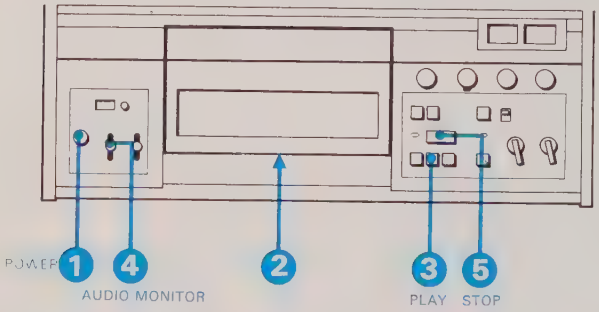


OPERATION

Circled numbers in the illustrations refer to step numbers in the text.

Preparation : Turn on and adjust the monitor for the best possible picture.

❶ Press the POWER button to turn on the recorder. The Pilot lamp will light.
❷ Insert the recorded videocassette.
❸ Press the PLAY button.
When playback begins, the AUDIO meters will indicate playback level. (The setting of the AUDIO level controls has no effect upon the playback level.)
❹ Set the AUDIO MONITOR selector referring to the table shown on page 9.
Normally, set the selector to MIX. When playing back a telecast recording through the TV connector (8-pin), set the selector to CH-2 or MIX.
❺ When the tape comes to its end, the machine will stop automatically. You may stop the tape at any point by pressing the STOP button.



● A videocassette recorded in stereo sound may be reproduced on a stereo system. To use a stereo system, turn down the volume at the monitor, and adjust the volume control on the stereo amplifier as required.
It may be effective to connect the Ground terminal [⏚] to an earth ground to reduce hum.
● For headphone monitoring, use stereo headphones having 8-ohms impedance and equipped with a standard binaural headphone plug. In this case, the AUDIO MONITOR selector affects the headphones as shown in the table on page 9.

PAUSE MODE (STILL PICTURE)

With the PAUSE button, tape motion may be stopped and restarted instantaneously.
Press the PAUSE button during playback to obtain a still picture on the screen. This mode is particularly helpful to check the picture when editing. After 7 to 10 minutes of operation, the tape slackens around the head drum to prevent clogging of the video heads, and the picture on the monitor disappears.
To release the pause mode, press the PAUSE button again.
A "snowy" band of noise may appear in the still-frame picture. This occurs as the rotating video heads cross over the guard band between two adjacent video tracks where no signal is recorded. To improve this picture, slowly slide the STILL ADJUST lever toward you so that the band of snow moves where it is least obstructive to the picture, such as into the vertical blanking interval. A field-by-field advance of the tape is possible by sliding this lever several times.

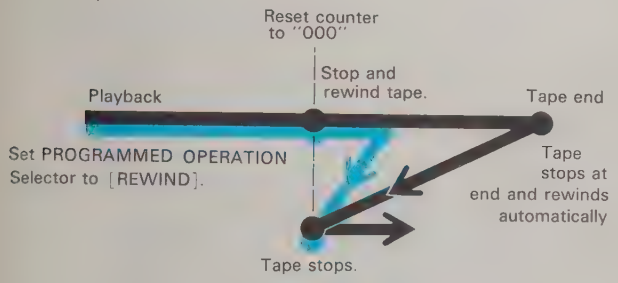
● **In the stop mode, if the PAUSE button is pressed, and then the PLAY button,** the machine will thread the tape and remain in the pause mode. When the PAUSE button is pressed again, playback will begin immediately.
When this feature is used, distortion may occur in the still picture. This is not a malfunction of the machine.

MEMORY COUNTER AND PROGRAMMED OPERATION

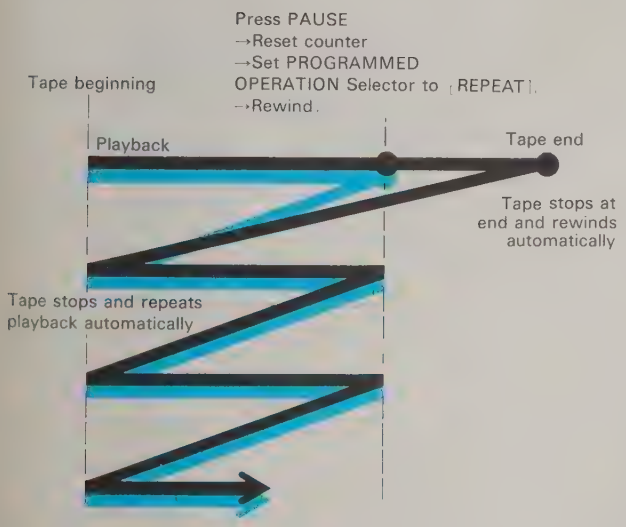
Normally, keep the PROGRAMMED OPERATION selector OFF. When the MEMORY COUNTER is reset with the PROGRAMMED OPERATION selector in [REWIND ⟲], the tape will automatically rewind to "000" when the REW button is pressed. This allows automatic, precise program relocation of the recorded tape.

For repeated playback of the same portion, reset the COUNTER first and then set the PROGRAMMED OPERATION selector to [REPEAT ⟳]. Press the REW button, and the tape rewinds to its beginning. Thus, the tape repeats playback between the beginning and the "000" counter reading.

REWIND operation

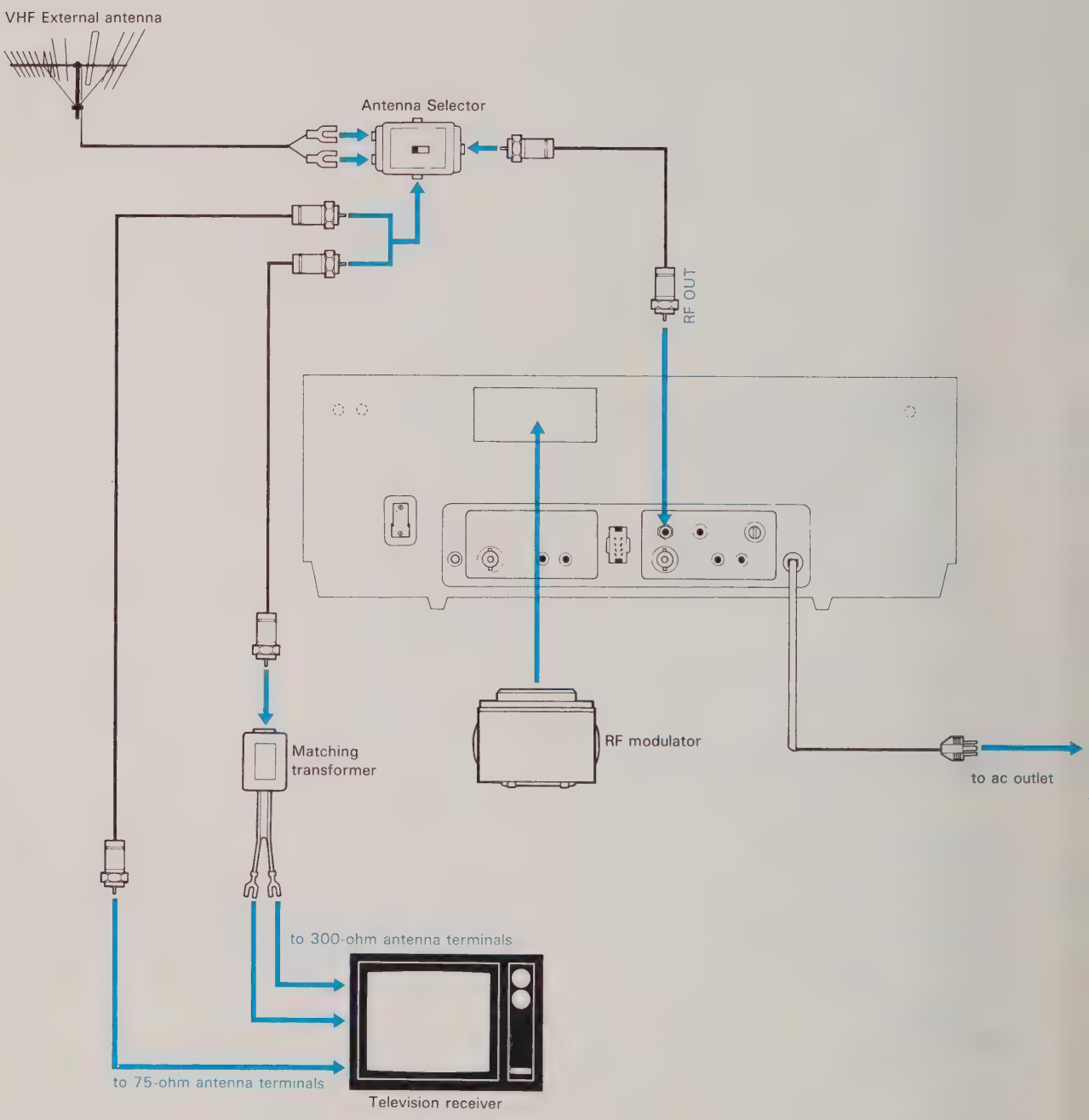


REPEAT operation



PLAYBACK USING A CONVENTIONAL TELEVISION RECEIVER

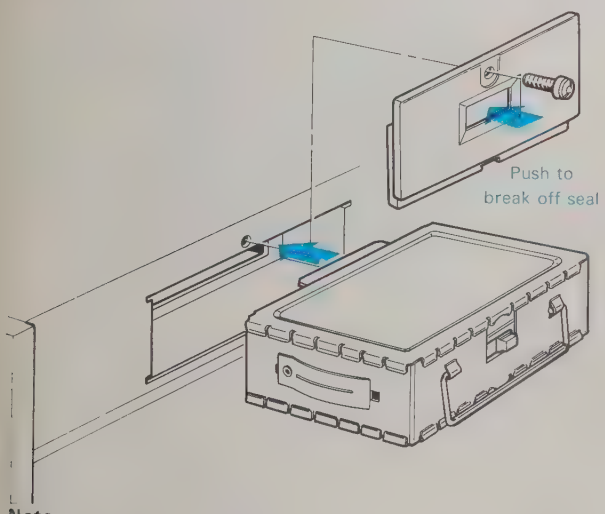
CONNECTIONS



Caution for the models available in the U.S.A.
Connection between the VO-2610 RF OUT terminal and antenna terminals of a TV receiver should be made only as shown in these instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of rf devices.
Never connect the output of the VO-2610 to an antenna, or make simultaneous (parallel) antenna and VO-2610 connections at the antenna terminals of your receiver.

RF MODULATOR INSTALLATION

❶ Set the channel selector on the RF unit to a locally inactive channel.
❷ Remove the RF modulator compartment lid with a screwdriver.
❸ Align the RF modulator plug with the socket and press it in until secured.
❹ Remove the plastic seal covering the opening on the lid.
❺ Close the compartment. Check that you can change the operating channel of the RF unit through it.



Note

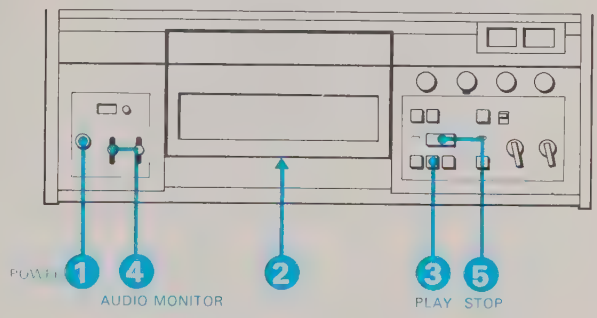
- When the RF modulator (optional) is not installed, no output signal will be available from the RF OUT connector.
- When the player is not in use and the TV set is to be used as a receiver, set the antenna selector to ANT.

OPERATION

Circled numbers in the illustrations refer to step numbers in the text.

Preparation : Turn on the TV and set the channel selector to the operating channel of the RF modulator (that is, Channel 3 or Channel 4). Set the ANT/VTR switch on the antenna selector to VTR.

❶ Press the POWER button to turn on the recorder. The Pilot lamp will light.
❷ Insert the recorded videocassette.
❸ Press the PLAY button.
When playback begins, the AUDIO meters will indicate playback level. (The setting of the AUDIO level controls has no effect upon the playback level.)
❹ Set the AUDIO MONITOR selector referring to the table shown on page 9.
Normally, set the selector to MIX. When playing back a telecast recording through the TV connector (8-pin), set the selector to CH-2 or MIX.
❺ When the tape comes to its end, the machine will stop automatically. You may stop the tape at any point by pressing the STOP button.



ADJUSTMENT OF THE PLAYBACK PICTURE

Normal picture

Skew adjustment

Observe the playback picture on the monitor screen. Picture "hooking" distortion in the upper part of the screen may be corrected by turning the SKEW control. This control knob automatically returns to its center position when the record mode of operation begins.

Tracking adjustment

In some cases, streaks or snow may appear in the playback of tapes made on other videocassette recorders. To correct this condition, turn the TRACKING control to the left or right until the best picture is obtained.

When playback of this particular tape is finished, return the knob to the center detent position [FIX].

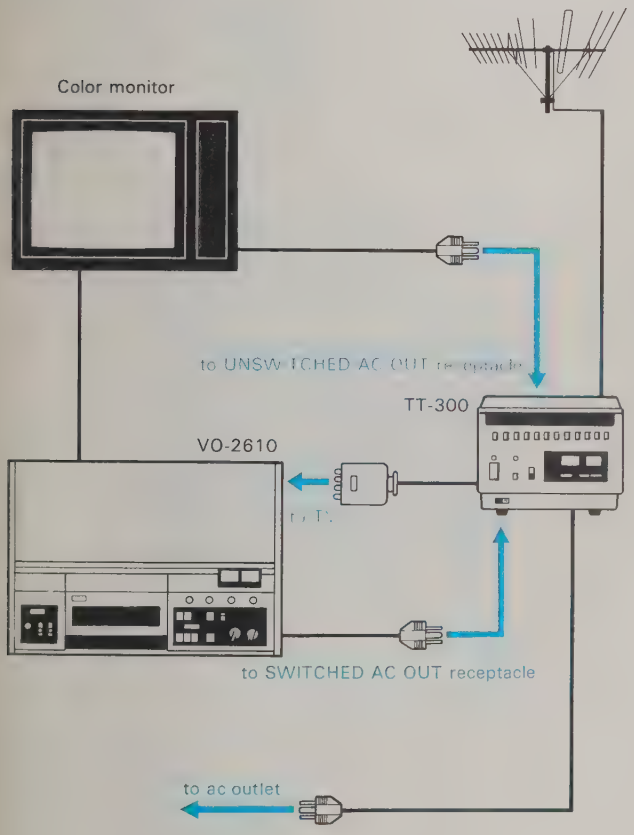
Color lock adjustment

The videocassette recorder is preadjusted at the factory to produce correct color, thus, it is rare that adjustment of color lock will be required. However, if the picture should suddenly lose color or does not maintain correct hue, adjust the COLOR LOCK control on the rear panel. Turn the control slowly to the left or right with a screwdriver until a normal picture is restored. When playback of this particular tape is finished, return the screw to its center detent position.

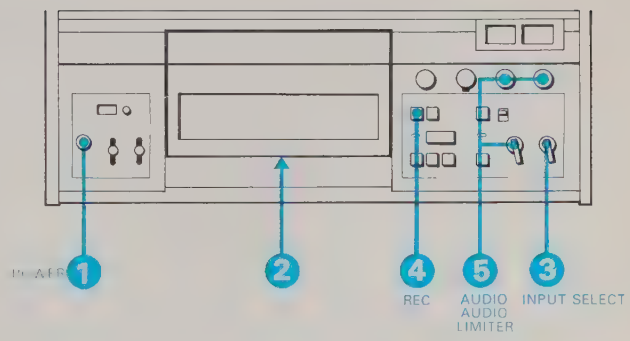
TIMER OPERATION

With the combined use of the supplied model FA-20 timer recording adaptor and an optional timer, such as the Sony model TT-300 tuner/timer or model DT-32 (available in the United States) or DT-30 (available in Canada) digital timer, timer recording and playback are possible while the recorder is unattended.

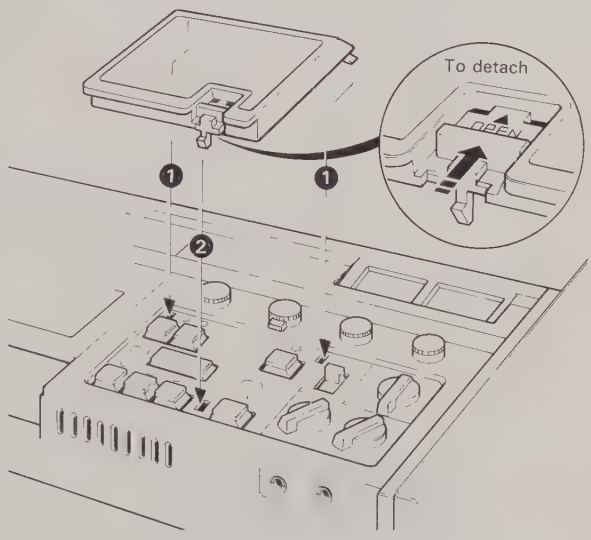
TIMER RECORDING



❶ Press the POWER button to turn on the recorder.
❷ Make sure that the red button is in place at the bottom of the cassette, and insert the videocassette.
❸ Set the INPUT SELECTor according to the input source applied. When using the TT-300, set the INPUT SELECTor to TV.
❹ Press the REC button to monitor the picture to be recorded. Make all necessary adjustments of the video input source in readiness for recording.
❺ Adjust the audio input signal level. Refer to the paragraph "Recording TV Programs" on page 9 for audio signal adjustment.



❻ Set the turn-on time on the timer (leave the recorder switched on).
❼ Turn off the monitor.
❽ Attach the timer recording adaptor to the recorder as illustrated.
The recorder will turn on and start recording at the preset time. When the tape reaches its end, the machine will stop automatically without entering into the automatic rewind mode.
After removing the adaptor, the tape will rewind automatically.



Note
When attaching the timer recording adaptor (FA-20), wait for the STAND BY lamp and also the F FWD lamp, if it goes on after the cassette insertion, to go off.

TIMER PLAYBACK

Timer playback is possible with the red button on the bottom of the cassette removed.

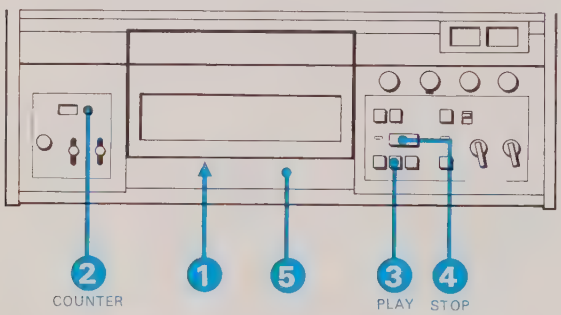
ERASING

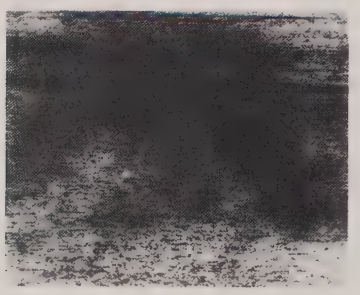
The erase head is energized in the record mode. Therefore, whenever a new recording is made, the previous recording on the tape is erased.
Should you desire to erase a section of tape without recording, disconnect all the signal sources connected, and run the tape in the record mode. (Check the videocassette prior to loading to make sure that the red button is in place.)

CLEANING THE VIDEO HEADS

A partially missing picture or the appearance of snow or streaks in the playback picture may indicate the need for cleaning the video heads. This is accomplished with a cleaning cassette as follows :

❶ Insert the cleaning cassette into the cassette compartment as you would a videocassette.
❷ Reset the tape counter to "000".
❸ Press the PLAY button and watch the tape counter.
❹ Press the STOP button when the counter indicates "010" (about 30 seconds running time).
❺ Remove the cleaning cassette. Do not rewind the cleaning cassette at the end of each use.
The cleaning cassette may be rewound and reused several times. However, after prolonged use, the cassette will lose its effectiveness and will require replacement.

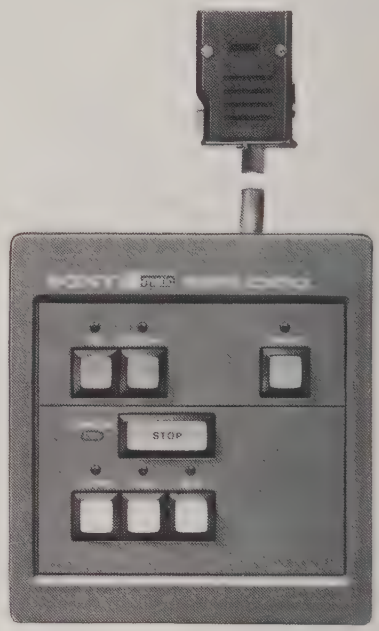




Caution
Do not use the cleaning cassette unless the picture symptoms (snow or streaks, etc.) clearly indicate the need for video-head cleaning. Excessive use of the cleaning cassette will shorten head life.

REMOTE CONTROL

The Sony model RM-420 remote control (optional) may be used to operate the VO-2610 from a remote location up to about 30 m (100 ft.). Since logic control is employed in the RM-420, operating modes can be changed without the need of pressing the STOP button between modes.



The Sony model RM-410 remote control is also available as an option. The CUT IN (INSERT) button of the RM-410 corresponds to the DUB/CH-1 button of the recorder. The CUT OUT (INSERT) and EDIT buttons on the RM-410 serve no function when used with this recorder. Since logic control is not employed in the RM-410, it is necessary to press the STOP button before changing functions from the FWD, F FWD or REW mode to any other.

TECHNICAL SPECIFICATIONS

General

Video recording signal	Rotary two-head helical scan system Luminance: fm recording Color signal: converted subcarrier direct recording
Video signal system	EIA Standards, NTSC color signals
Storage temperature	−20°C to +60°C (−4°F to 140°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
RF output signal	Channel 3 or channel 4 (with optional RF kit), 75 ohms, unbalanced
Power requirements	Standard type: 120 V ac ±10%, 60 Hz ±0.5% Other type: 220/120 V ac ±10%, 50 Hz ±0.5%
POWER consumption	130 W
Weight	30 kg (66 lb 2 oz) (VO-2610) 31 kg (68 lb 5 oz) (VO-2610E)
Dimensions	591 × 227 × 417 mm (w/h/d) (23 3/8 × 9 × 16 3/8 inches)

Video

Input	1.0 V (p-p) $^{+1.0\ V\ (p\text{-}p)}_{-0.5\ V\ (p\text{-}p)}$, 75 ohms, sync negative, unbalanced
Output	1.0 V (p-p) ±0.2 V (p-p), 75 ohms, sync negative, unbalanced
Horizontal resolution	Monochrome: 320 lines Color: 240 lines
Signal-to-noise ratio	B/W: Better than 45 dB Color: Better than 43 dB

Audio

Input (both channels)	LINE IN jacks: −10 dB, 100 k ohms, unbalanced MIC IN jacks: −60 dB, suitable for microphones with 600-ohms impedance, unbalanced
Output	LINE OUT jacks (both channels): −5 dB (100 k ohm load), unbalanced AUDIO MONITOR jack: −5 dB (100 k ohm load), unbalanced HEADPHONES jack: 8 ohms
Frequency response	50 to 15,000 Hz
Signal-to-noise ratio	Better than 48 dB (both channels, 3% distortion at 1 kHz)

Tape transport

Tape speed	9.53 cm/sec. (3 3/4 ips)
Wow and flutter	Less than 0.2% rms
Recording or playback time	60 min. (for Sony KCA-60) 30 min. (for Sony KCA-30)
Fast forward time	Within 6 min. (for Sony KCA-60)
Rewind time	Within 4 min. (for Sony KCA-60)

Special functions

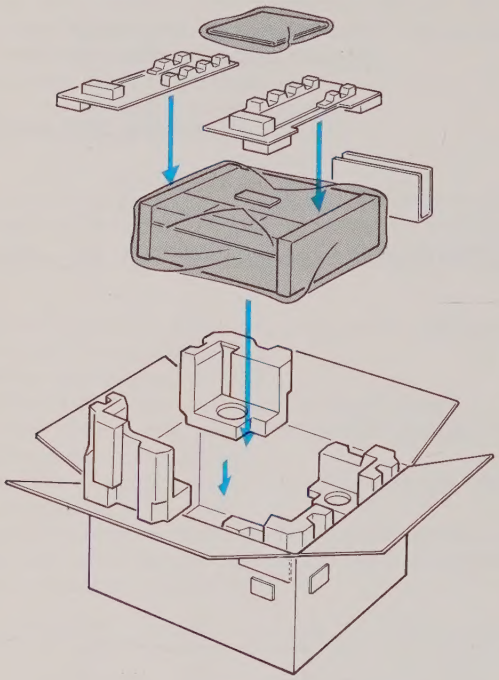
Pause mode	Still picture displayed (released automatically in 7 to 10 minutes)
Timer operation	With supplied timer recording adaptor and optional timer
Remote control	With Sony model RM-420 or RM-410 remote control unit

Accessories supplied	Timer recording adaptor FA-20 Dust cover
Optional accessories	Sony model RM-420 or RM-410 remote control Remote Control Cable RCC-5C Sony model TT-300 tuner/timer Sony model DT-32 digital timer (available in the United States) Sony model DT-30 digital timer (available in Canada) Sony RF Kit RFK-534 Cleaning cassette KC-1C

Design and specifications subject to change without notice.

REPACKING FOR SHIPMENT

The repacking procedure shown below is subject to change. Refer to the packing instructions on the original carton as well as those shown here.



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